

Point Loma Nazarene University		LO 1	LO 2a	LO 2b	LO 2c	LO 2d	LO 2e	LO 3	LO 4	LO 5	LO 6
<b>Biology-Chemistry B.S. Curriculum Map - Students will be able to:</b>		Demonstrate an understanding of the process of science, and of the concepts and theories of biology across a broad range of organizational levels: molecular (M), cellular (C), and organismal (O).	Apply key concepts and principles in quantitative analysis.	Apply key concepts and principles in biochemistry.	Apply key concepts and principles in bioinorganic chemistry.	Apply key concepts and principles in organic chemistry.	Apply key concepts and principles in physical chemistry (thermodynamics and kinetics).	Use standard instrumentation and laboratory equipment to conduct scientific experiments and perform chemical characterization and analyses.	Participate in the life of the Biology and/or Chemistry Department by involvement in one or more of the following areas: research, biology and/or chemistry clubs, and/or various positions of responsibility serving as graders, tutors, stockroom workers and/or teaching assistants.	Develop a rationally defensible integration of science and faith.	Be prepared for post graduate studies or a science-related career.
Course	Course Title	M	C	O							
<b>LOWER-DIVISION REQUIREMENTS</b>											
BIO 2010/2010L	Cell Biology and Biochemistry	I	I							I	I
BIO 2011/2011L	Ecological and Evolutionary Systems		I							I	I
BIO 2012/2012L	Organismal Biology		I								I
CHE 1052/1052L	General Chemistry I			I	I	I	I	I	I		
CHE 1053/1053L	General Chemistry II				I	I	I	I	I		
CHE 2013	Analytical Chemistry		D/M					D	D		
CHE 2094/2094L	Organic Chemistry I				I			D	D		
CHE 2096/2096L	Organic Chemistry II				D		M		M		
<b>UPPER-DIVISION REQUIREMENTS</b>											
		M	C	O							
BIO 3045/3045L	Genetics	D	D	D						D	D
BIO 3080/3080L	Molecular Biology	D/M	D								D
BIO 4097	Biology Seminar									M	M
CHE 3025/3025L	Physical Chemistry I						M		M		
BIO/CHE 4050/4050L	Advanced Biochemistry	M	M		M	D		D	M		D
<b>One course from:</b>											
		M	C	O							
CHE 3026	Physical Chemistry II										
CHE 3051	Organic Structure Elucidation										
CHE 3070	Instrumental Analysis										
CHE 4053	Advanced Organic Chemistry										
CHE 4066	Advanced Inorganic Chemistry I				D	D/M					
CHE 4068	Advanced Inorganic Chemistry II										
<b>At least 5 units from:</b>											
		M	C	O							
BIO 3012	Applied Plant Science		D	M							D
BIO 3015/3015L	Microbiology	D	D								D
BIO 3023/3023L	Introduction to Oceanography		D							D	D
BIO 3033/3033L	Marine Biology		D/M							D	D
BIO 3040	Field Biology		D								D
BIO 3050/3050L	Advanced Cell Biology	M	M								D
BIO 3052	Research Methodology	D	D	D							D
BIO 3063/3063L	Conservation Ecology		D							D	D
BIO 3090/3090L	Immunology	M	M	M							D
BIO 4000/4000L	Developmental Biology	M	M	D						M	D
BIO 4010/4010L	Vertebrate Biology		D/M							D/M	D
BIO 4023/4023L	Advanced Human Physiology		D	D/M							D
BIO 4030/4030L	Animal Behavior			D/M						D/M	D
BIO 4070	Neuroscience	D	M	M							D
BIO 4073/4073L	Experimental Marine Ecology		M								D
<b>Other Activities</b>											
		M	C	O							
	Advising (faculty, pre-health, pre-teaching)										I/D
	Career Dinners										D
	Science clubs and/or grader, tutor, stockroom worker, TA								I/D/M		I/D
	Research	M	M	M					D/M		D/M
	Internships	M	M	M							D/M